REPORT

Clinical, radiological, and functional assessment in psoriatic arthritis: is it different from other inflammatory joint diseases?

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Psoriatic arthritis (PsA) is an inflammatory arthritis associated with psoriasis.¹ It is usually seronegative for rheumatoid factor. PsA may affect as many as 30% of patients with psoriasis. It may present in one of a number of clinical patterns, including:

- a distal pattern affecting the distal interphalangeal (DIP) joints of the hands and feet
- an oligoarticular pattern in which four or fewer joints are affected, usually in an asymmetric distribution
- a polyarticular pattern which may be indistinguishable from rheumatoid arthritis
- a predominantly spinal pattern
- arthritis mutilans, a very destructive form of arthritis.

PsA affects men and women equally, and usually begins in the fourth decade. Although the psoriasis precedes the arthritis in the majority of patients, some 15% of patients have simultaneous development of skin and joint disease, and in another 15% the joint manifestations may precede the skin lesions. Because of its asymmetrical nature, the occurrence of spondylitis in about 50% of the patients, its extra-articular features, and its association with human leucocyte antigen (HLA)-B*27, PsA has been classified among the seronegative spondyloarthropathy (SpA) group of conditions.

CLINICAL FEATURES OF PsA

PsA presents with a peripheral arthritis, and thus needs to be distinguished from rheumatoid arthritis (RA). In addition, since more than 50% of patients with PsA have DIP joint involvement, it needs to be distinguished from osteoarthritis (OA). As many patients with PsA have elevated serum uric acid, PsA needs to be differentiated from gout. As a member of the SpA group, it needs to be differentiated from the other members of the group namely ankylosing spondylitis (AS), reactive arthritis, and the arthritis of inflammatory bowel disease.

As an inflammatory arthritis, PsA must be differentiated from RA (table 1). PsA affects men and women equally whereas RA affects women more commonly. Whereas RA affects metacarpophalangeal and proximal interphalangeal joints, PsA affects the DIP joints in at least 50% of patients. RA tends to have a symmetrical distribution, but PsA in asymmetry occurs, and more often all joints of the same digit are affected leading to a "ray" distribution. This may be noted both clinically and radiologically. Patients with PsA are less tender than patients with RA.² The spine is spared in RA, while 50% of patients with PsA have spinal involvement manifested as sacroiliitis and/or syndesmophytes. Enthesitis and dactylitis are features of PsA that are not commonly seen in patients with RA. Skin psoriasis is a prerequisite for the diagnosis of PsA. It occurs in 2–3% of patients with RA,

similar to its frequency in the general population. Nail lesions are more common in patients with PsA than in patients with uncomplicated psoriasis and serve to distinguish patients who have RA and psoriasis from those with PsA.³ Pathologically, fewer monocytes/macrophages and more T cells have been documented in synovial tissue from PsA compared with RA.⁴ The synovial lining cells exhibit less hyperplasia than in RA. The synovium is more vascular, with more tortuosity⁵, vascular endothelial growth factor is more highly expressed, and tumour necrosis factor (TNF) is as highly expressed in PsA joints and skin lesions as in RA.^{6,7} Osteoclast precursors are more numerous in patients with PsA versus controls; numbers reduce following TNF antagonist therapy.⁸

The presence of DIP involvement requires differentiation between PsA and OA (table 1). Whereas PsA is inflammatory in nature, OA is generally not, except in those patients who demonstrate inflammatory OA. OA may co-occur with psoriasis, but these patients will not have nail lesions. Moreover, they will not have some of the other manifestations of PsA.

The oligoarticular presentation requires differentiation from gout (table 1). As patients with PsA may have hyperuricaemia this differentiation is important.⁹ Gout is often associated with periarticular inflammation, which is not a feature of PsA.

The spondylitis seen in patients with PsA is not as severe as that seen in patients with AS.¹⁰ Patients with PsA have better mobility, less grade 4 sacroiliitis and fewer syndesmophytes than patients with AS (table 2). Peripheral arthritis is more common among patients with PsA. Only 2% of patients with PsA have isolated spinal involvement, whereas 10% of patients diagnosed with AS have psoriasis. Whether there are differences between these two conditions remains to be determined.

RADIOLOGICAL FEATURES OF PsA

Several features have been traditionally considered to differentiate between PsA and RA (table 1).¹¹ As is noted in the clinical presentation there are radiological features which help distinguish PsA. The asymmetry noted clinically can be seen radiologically. Although Sokoll and Helliwell¹² found that the radiological changes in RA were more severe than those of PsA, Rahman *et al*¹³ found similar severity in patients with RA and PsA matched on age and disease duration. Recently, the Classification in Psoriatic ARthritis (CASPAR) study on the classification of PsA identified juxta-articular bone formation as the only radiological differentiation between RA and PsA.¹⁴

Abbreviations: DIP, distal interphalangeal; OA, osteoarthritis; PsA, psoriatic arthritis; RA, rheumatoid arthritis

Table 1 Differentiating psoriatic arthritis from rheumatoid arthritis

	Psoriatic arthritis	Rheumatoid arthritis	Inflammatory osteoarthritis	Gout
Distal interphalangeal joint involvement	Common	Uncommon	Common	Uncommon
Symmetry	Less Common	Common	Uncommon	Uncommon
Erythema of joint	Common	Uncommon	Uncommon	Common
Tenderness	Mild	Severe	Mild	Severe
Back involvement	Common	Uncommon	Uncommon	Uncommon
Skin lesions	Always	Uncommon	Uncommon	Uncommon
Nail lesions	Common	Uncommon	Uncommon	Uncommon
Dactylitis	Common	Uncommon	Uncommon	Uncommon
Enthesitis	Common	Uncommon	Uncommon	Uncommon
Rheumatoid nodules	Never	Common	Uncommon	Uncommon
Rheumatoid factor	Uncommon	Common	Uncommon	Uncommon
Radiological changes				
Osteopenia	Less common	Common	Uncommon	Uncommon
Periostitis	Common	Rare	Uncommon	Uncommon
Pencil-in-cup change	Common	Rare	Uncommon	Uncommon
Ankylosis	Common	Rare	Uncommon	Uncommon
Sacroiliitis	50%	Rare	Uncommon	Uncommon
Quality of life	Reduced	Reduced	Reduced	?
Function	Reduced	Reduced	Reduced	?

Using the same methods to define radiological changes in the spine, PsA patients were shown to have less severe radiological changes compared with patients with AS in two studies.^{10–15} PsA has traditionally been considered to differ from AS in the appearance of the paramarginal syndesmophytes which are uncommon in AS. Also, in PsA the changes in the sacroiliac joints are often asymmetrical. Helliwell *et al*¹⁵ demonstrated that patients with PsA had more “chunky” syndesmophytes and more cervical involvement than patients with AS.

FUNCTIONAL ASSESSMENT IN PsA

Functional assessment of patients with PsA has included the use of the Arthritis Impact Measurement Scales (AIMS), the Health Assessment Questionnaire (HAQ) and the Medical Outcome Survey Short Form 36 (SF-36). AIMS and HAQ were developed for RA, but have been used in a number of other forms of arthritis. AIMS and AIMS2 have been used in PsA and have been shown to reflect disease activity.^{16–17} The original HAQ and well as its modification for spondyloarthritis have been studied in PsA.¹⁸ A further modification for psoriasis was developed but not found to be superior to the original HAQ.¹⁹ A comparison of HAQ scores between RA and PsA revealed that PsA patients had lower HAQ scores, reflecting better function, than RA patients.²⁰ However, in

another study HAQ scores were shown to be similar in the two diseases.¹² It should be noted, however, that in clinical trials, the HAQ scores of patients with PsA have been similar to those with RA, in a range of 1.0–1.1, reflecting significant functional impairment.

The SF-36 is a generic quality of life instrument. It has functioned well in PsA longitudinal cohort studies, where it has been shown to be more sensitive to changes in disease activity than the HAQ.^{21–22} Both HAQ and SF-36 have demonstrated responsiveness in clinical trials.^{23–25} Similar observations have been noted with regards to these instruments in PsA, AS, and RA (table 3). Recently, a disease specific quality of life instrument was developed for PsA. The PsAQoL tool has been shown to have content and face validity, but requires use in clinical trials to demonstrate responsiveness.²⁶

Thus, there are differences between the clinical and radiological features of PsA and both RA and the other SpAs, which should help distinguish these conditions in clinical practice and in therapeutic trials. These differences suggest that at present these conditions should be reviewed and investigated as individual diseases. Quality of life and functional ability are reduced in all inflammatory conditions, and although there may be some differences, these important outcome measures may not be disease specific. These

Table 2 Differentiating psoriatic arthritis from other spondyloarthropathies

Feature	Psoriatic arthritis	Ankylosing spondylitis	Reactive arthritis	Inflammatory bowel disease
Male:female	1:1	3:1	8:1	1:1
Age at onset	35–45	20	20	Any
Peripheral distribution	96%	25%	90%	Common
	Any	Axial	Lower limbs	Lower limbs
		Lower limbs		
Dactylitis	35%	Uncommon	Common	Uncommon
Enthesitis	Common	Common	Common	Uncommon
Sacroiliitis	50%	100%	80%	20%
Syndesmophytes	Classic and paramarginal	Classic	Classic and paramarginal	Classic
HLA-B*27	50%	>90%	80%	40%
Psoriasis	Always	Uncommon	Uncommon	Uncommon
Other skin lesions	Nail changes	Uncommon	Keratoderma blennorrhagica	Erythema nodosum
Quality of life	Reduced	Reduced	Likely reduced	Pyoderma gangrenosum
Function	Reduced	Reduced	Reduced	Reduced

Table 3 Comparison of health related quality of life and function in psoriatic arthritis, ankylosing spondylitis, and rheumatoid arthritis

Instrument	Ankylosing spondylitis	Psoriatic arthritis	Rheumatoid arthritis
AIMS2*	5	3.34	3.43
HAQ	0.375	0.58	1.11
HAQ-S	0.5	0.53	–
SF-36*	59	42	34

outcomes provide an additional construct to the clinical and radiological outcomes both in PsA and other inflammatory diseases.

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